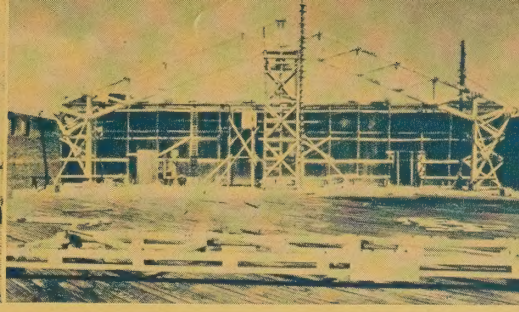
Loading Shed 100′ Span

Airplane Hangar Truss 150′ Span



Gymnasium Truss 104′ Span

TYPICAL LUMBER DESIGNS

With Quantities and Materials Lists for Light and Heavy Frame Structures

1942 EDITION

TECO Typical Designs

THE first five pages of this bulletin illustrate and list one hundred and seventy Typical Lumber Designs employing the TECO connector system of timber construction, which are available from the Timber Engineering Company, a subsidiary of the National Lumber Manufacturers Association.

Through this new service typical lumber designs are offered builders, architects and engineers as illustrations, which can be used in designing to fit specific needs.

The typical designs listed herein illustrate recommended design practice with TECO timber connectors to insure greater strength, rigidity, and economy of timber built structures. TECO timber connectors open to timber construction improvements over old time building methods for garages, warehouses, auditoriums, gymnasiums, hangars, farm structures, school houses, prefabricated small homes, grandstands, lookout towers, radio towers, tank towers, bridges and other structures. Every engineer, architect, and contractor should have this up-to-date information for future building needs.

TECO timber connector structures are the newest and most economical development in the building field. No designer can afford to overlook their possibilities. Complete technical literature will be supplied, upon request.

The Timber Engineering Company maintains a staff of engineers who, upon request, will examine plans for the adequate and proper use of connectors. Only detailed drawings should be submitted for examination.

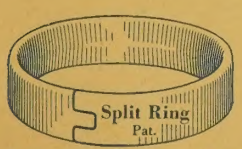
Planographs of Timber Engineering Company designs marked * will be supplied FREE, upon request. Other TECO designs will be supplied at a cost of 50 cents for the first sheet and 25 cents for each additional sheet of each design. The majority of these designs consist of a single sheet.

Additional Typical Designs

In the Appendix, on pages 6 to 11, there is also listed over three hundred additional typical designs, which are available from other organizations that are cooperating with the Timber Engineering Company. The terms on which these typical designs are available are stated for each group. For information on these designs, inquiries should be addressed to those under whose names the designs are listed.

Sources of TECO Connectors

TECO connectors and installing equipment may be ordered from the Timber Engineering Company or its distributors located in principal cities. Prices of connectors and installing equipment will be supplied, upon request. To facilitate proper and easy installation of TECO timber connectors, it is recommended that only the installation devices manufactured by the Timber Engineering Company be used.

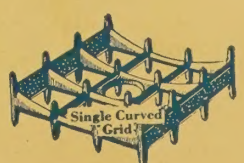


Split rings of mild steel in sizes of 2½, 4, 6 and 8 in. diameters are for wood-to-wood connections for medium and heavy loads in permanent or demountable structures.

Toothed rings of 16-gage sheet steel in sizes of 2, 2⅝, 3⅜ and 4 in. diameters are for wood-to-wood connections in thin members or where loads are light.

Claw plates of malleable iron in 2⅝, 3⅛ and 4 in. diameters, male and female types, are for wood-to-wood connections or wood-to-steel in permanent or demountable structures.

Flanged shear plates of 2⅝ in. diameter pressed steel and 4 in. diameter malleable iron are for wood-to-wood, or wood-to-steel connections in permanent or demountable structures.



Spike grids of malleable cast iron, three types in sizes 4⅛x4⅛ in., are for bracing timber bents and trestles, and for piers, wharves, bulkheads and cribwork.

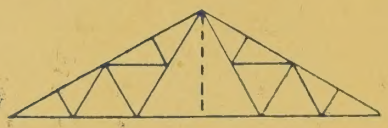
TIMBER ENGINEERING COMPANY
1337 Connecticut Avenue, Northwest
WASHINGTON, D. C.

A. I. A. FILE NO. 19-B

Requests for Designs

WHEN requesting designs, please order by TECO number. If you are in doubt as to the typical design you desire, send us the span, loading, spacing, type of truss, and any other information which you have at hand. The more information you supply us, the better we will be able to serve you. In column below entitled "Size and Type Connectors" the Split Rings are designated S.R.; Toothed Rings, T.R.; Shear Plates, Sh.Pl.; Claw Plates, Cl.Pl.

Triangular Roof Trusses



Fink Truss

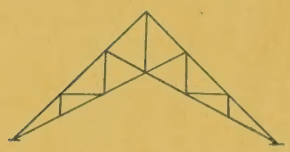
Belgian Truss

Pratt Truss

TECO No.	*Type*	*Span*	*Depth*	*Spacing*	*Live and Dead Load*	*Size and Type of Connectors*
*39	Tr. Rafter	20′, 24′, 28′, 32′, 36′, 40′	1 in 4	2′–0″	40	2″ & 2-5/8″ T.R.
*157	Tr. Rafter	26′–0″	8′–5″	2′–0″	65	3-3/8″ T.R. or 2-1/2″ S.R.
271	Pitched	26′–0″	8′–3″	7′–0″	65	4″ S.R.
183	Tr. Rafter	27′–0″	8′–0″	2′–0″	40	2–5/8″ T.R.
371	Tr. Rafter	28′–0″	7′–0″	4′–0″	50	2-1/2″ S.R.
202	Fink	29′–6″	8′–6″	10′–0″	40	4″ T.R.
242	Fink	30′–0″	7′–6″	16′–0″	40	4″ S.R.
29	Tr. Rafter	30′–0″	6′–0″	2′–0″	25	2″ T.R.
263	Park Shelter	30′–0″	7′–6″	10′–0″	40	2-1/2″ S.R.
295	Pitched	30′–0″	6′–3″	7′–6″	35	4″ S.R.
346	Pitched	30′–0″	7′–4″	15′–0″	30	2-1/2″ S.R.
333	Pratt	31′–0″	9′–0″	14′–0″	50	4″ S.R.
373	Pratt	31′–0″	7′–9″	20′–0″	70	4″ S.R.
222	Fink	35′–0″	11′–8″	16′–0″	45	2-5/8″ & 4″ T.R.
*180	Fink	36′–0″	9′–0″	12′–0″	30	2-1/2″ S.R.
160	Pratt	36′–0″	12′–0″	10′–0″	40	4″ S.R.
314	Belgian	36′–0″	8′–0″	17′–0″	40	4″ S.R.
*321	Pitched	37′–0″	7′–8-1/2″	12′–0″	35	4″ S.R.
266	Pratt	39′–2-1/2″	1 in 4	20′–0″	40	4″ S.R.
176	Pratt	39′–4″	5′–0″	15′–0″	30	4″ S.R.
223	Fink	40′–0″	13′–4″	16′–0″	45	2-5/8″ & 4″ T.R.
327	Tr. Rafter	40′–0″	12′–0″	4′–0″	45	4″ T.R.
345	Fink	40′–0″	8′–0″	16′–0″	40	4″ S.R.
348	Market Shed	42′–6″	8′–9″	16′–0″	50	2-1/2″ & 4″ S.R.
303	Pratt	43′–0″	11′–0″	13′–0″	50	2-1/2″ S.R.
101	Belgian	44′–0″	8′–0″	16′–0″	42	4″ S.R.
357	Belgian	44′–0″	8′–0″	16′–0″	45	4″ S.R.
224	Fink	45′–0″	15′–0″	16′–0″	45	4″ S.R.
356	Fink	47′–6″	15′–0″	16′–0″	42	4″ S.R.
282	Belgian	48′–0″	6′–0″	18′–0″	43	4″ S.R.
299	Pratt	48′–0″	12′–0″	20′–0″	40	4″ S.R.
330	Howe	49′–0″	12′–3″	17′–6″	40	4″ S.R.
78	Market Roof	49′–0″	8′–0″	18′–0″	40	4″ S.R.
*123	Pratt	50′–0″	10′–0″	16′–0″	40	4″ S.R.
124	Belgian	50′–0″	6′–0″	15′–0″	40	4″ S.R.
*35	Fink	50′–0″	10′–0″	16′–0″	40	2-1/2″ & 4″ S.R.
225	Fink	50′–0″	16′–8″	16′–0″	45	4″ S.R.
367	Pratt	54′–0″	13′–6″	15′–0″	40 & Spec.	4″ S.R.
226	Fink	55′–0″	18′–4″	16′–0″	45	4″ S.R.
298	Fink	56′–6″	7′–8″	14′–0″	40	4″ S.R.
332	Pratt	58′–0″	16′–11″	12′–0″	40	4″ S.R.
155	Pratt	58′–0″	20′–0″	14′–0″	60	4″ & 6″ S.R.
331	Pratt	59′–4″	12′–4″	16′–0″	40	4″ S.R.
203	Pitched	30′–30′	7′–0″	20′–0″	50	4″ S.R. & 3-1/8″ Cl.Pl.
33	Fink	60′–0″	12′–0″	15′–0″	40	4″ S.R.
227	Fink	60′–0″	20′–0″	16′–0″	45	4″ S.R.
326	Fink	60′–0″	10′–1-1/2″	15′–0″	40	4″ S.R.
375	Belgian	60′–0″	10′–0″	8′–0″	40	4″ S.R.
290	Pratt	60′–0″	15′–0″	18′–0″	50	4″ S.R.
33A	Fink	65′–7″	15′–0″	15′–4″	50	4″ S.R.
170	Fink	68′–2-1/2″	13′–9″	11′–9″	50	2-1/2″ & 4″ S.R.
247	Belgian	70′–0″	15′–0″	15′–0″	45	4″ S.R.
258	Belgian	75′–0″	15′–0″	15′–0″	50	4″ S.R.
10	Fink	80′–0″	16′–0″	16′–0″	40	4″ S.R.
*185	Belgian	80′–0″	12′–0″	12′–0″	40	4″ S.R.
340	Belgian	80′–0″	16′–9″	16′–0″	40	4″ S.R.

*Supplied Free—See second column, front page.

Scissors and Cambered Fink Roof Trusses



Scissors Truss

Cambered Fink

TECO No.	Type	Span	Depth	Spacing	Live and Dead Load	Size and Type of Connectors
*4	Tr. Rafter	20′, 24′, 28′, 32′, 36′, 40′	1 in 3	2′–0″	40	2-5/8″ or 4″ T.R.
269	Pitched	30′–0″	9′–9″	12′–0″	40	4″ S.R.
209	Scissors	33′–0″	16′–7″	12′–0″	40	3-1/8″ Cl.Pl. 4″ S.R.
179	Scissors	35′–0″	22′–0″	11′–0″	30–Wind 20–Dead	3-1/8″ Cl.Pl. 2-1/2″ S.R.
306	Scissors	39′–0″	5′–0″	16′–0″	45	4″ S.R.
310	Fink	40′–0″	12′–0″	16′–0″	50	4″ S.R.
*206	Scissors	46′–6″	13′–9″	9′–0″	60	4″ S.R.
301	Fink	50′–0″	12′–0″	12′–0″	50	4″ S.R.
311	Fink	57′–0″	14′–9″	15′–0″	40	4″ S.R.
316	Fink	65′–8″	11′–9″	18′–9″	60	4″ S.R.

Flat Roof Trusses

Double Warren Truss

Flat Top Pratt

Single Warren

TECO No.	Type	Span	Depth	Spacing	Live and Dead Load	Size and Type of Connectors
302	Tr. Rafter	23′–9″	1′–6″	2′–0″	47	2-5/8″ T.R.
363	Warren	28′–3″	3′–0″	6′–0″	50	4″ S.R.
31	Pratt	30′–0″	3′–0″	16′–0″	40	4″ S.R.
374	Pratt	31′–0″	3′–6″	16′–0″	40	4″ S.R.
334	Warren	31′–0″	3′–0″	19′–0″	45	4″ S.R.
300	Pratt	35′–0″	4′–0″	15′–0″	40	4″ S.R.
27	Shallow Lattice	36′–0″	3′–0″	15′–0″	40	2-1/2″ & 4″ S.R.
359	Pratt	40′–0″	7′–0″	20′–0″	65	4″ S.R.
338	Pratt	40′–0″	4′–4″	16′–0″	40	4″ S.R.
291	One Slope Pratt	40′–0″	4′–0″	10′–0″	40	4″ S.R.
207	Double Warren	43′–0″	3′–4″	10′–0″	35	2-5/8″ & 4″ T.R.
280	Pratt	44′–0″	2′–3″	12′–0″	43	4″ S.R.
341	One Slope Pratt	45′–0″	4′–6″	8′–0″	25	4″ S.R.
372	Warren	45′–6″	4′–0″	6′–0″	50	4″ S.R.
347	Pratt	46′–6″	5′–0″	16′–0″	66	4″ S.R.
349	Pratt	48′–0″	5′–0″	16′–0″	50	4″ S.R.
362	Warren	48′–6″	5′–0″	6′–0″	50	4″ S.R.
292	Pratt	49′–0″	2′–6″	11′–4″	43	4″ S.R.
342	One Slope Warren	49′–0″	2′–0″	7′–0″	43	2-1/2″ & 4″ S.R.
344	One Slope Tr. Rafter	49′–0″	2′–2″	2′–0″	49	2-1/2″ S.R.
370	One Slope Tr. Rafter	49′–0″	2′–6″	2′–0″	49	2-1/2″ S.R.
221	Pratt	50′–0″	6′–0″	15′–0″	40	4″ S.R.
329	Pratt	50′–0″	2′–6″	8′–0″	40	4″ S.R.
368	Pratt	53′–3″	12′–0″	25′–0″	65	4″ S.R.
369	Double Warren	53′–3″	12′–0″	25′–0″	65	4″ S.R.
360	Pratt	54′–0″	6′–0″	7′–0″	55	4″ S.R.
353	One Slope Tr. Rafter	57′–0″	2′–6″	2′–0″	50	2-1/2″ S.R.
*77	Pratt	60′–0″	7′–0″	16′–0″	40	4″ S.R.
376	Pratt	60′–0″	6′–0″	7′–0″	40	4″ S.R.
359	Pratt	60′–0″	8′–0″	20′–0″	65	4″ S.R.
337	Pratt	77′–0″	9′–9″	14′–0″	50	4″ S.R.
381	Pratt	80′–0″	8′–0″	14′–0″	50	4″ S.R.

*Supplied Free—See second column, front page.

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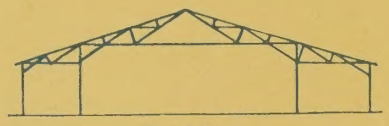
Bowstring Roof Trusses

Bowstring Truss

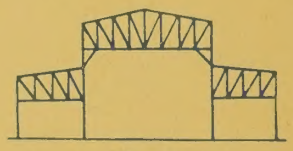
TECO No.	*Type*	*Span*	*Depth*	*Spacing*	*Live and Dead Load*	*Size and Type of Connectors*
377	Bowstring	40′–0″	5′–0″	11′–0″	40	2-1/2″ S.R. & 2-5/8″ Sh.Pl.
285	Bowstring	50′–0″	2′–6″	8′–0″	43	2-1/2″ S.R.
267	Bowstring	50′–0″	8′–0″	8′–0″	40	2-1/2″ S.R. 2-5/8″ Sh.Pl.
*8	Bowstring	60′–0″	8′–0″	16′–0″	40	2-1/2″ S.R. 4″ Sh.Pl.
378	Bowstring	65′–0″	8′–6″	14′–0″	40	2-1/2″ S.R. & 4″ Sh.Pl.
*254	Bowstring	80′–0″	10′–0″	16′–0″	40	2-1/2″ S.R. 4″ Sh.Pl.
*253	Bowstring	100′–0″	12′–0″	16′–0″	40	2-1/2″ S.R.
255	Bowstring	120′–0″	14′–0″	16′–0″	40	2-1/2″ & 4″ S.R.

Factory Construction—Roof Trusses

Sawtooth Truss



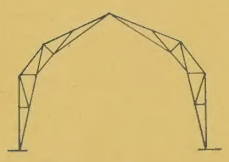
Shed Roof



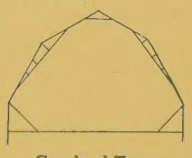
Factory

TECO No.	*Type*	*Span*	*Depth*	*Spacing*	*Live and Dead Load*	*Size and Type of Connectors*
*205	Sawtooth	32′–0″	7′–0″	20′–0″	30	4″ S.R.
355	Factory (3 Span)	36′, 42′, 36′	7′–0″	18′–0″	50	4″ S.R.
171	Factory or Shed (3 Span)	20′, 47′–6″, 20′	9′–7″	11′–8″	50	2-1/2″ & 4″ S.R.
305	Warehouse (4 Span)	51′–6″ ea.	12′–0″	15′–0″	50	4″ S.R.
380	Factory (3 Span)	30′–57′–30′	9′–4″	11′–6″	60	4″ S.R.
304	Warehouse (3 Span)	28′–5″, 60′, 28′–5″	9′–7″	11′–8″	50	2-1/2″ & 4″ S.R.
352	Shipway Roof (With Monitor)	73′–0″	12′–0″	20′–0″	40	4″ S.R. 4″ Sh.Pl.
243	Designs Showing Post & Girder Details for Heavy Mill Type Construction.					

Barn Trusses and Farm Buildings



Shawver Truss



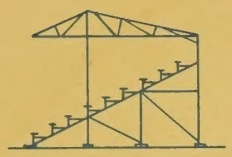
Gambrel Truss

Pitched Truss

TECO No.	*Type*	*Span*	*Depth*	*Spacing*	*Live and Dead Load*	*Size and Type of Connectors*
*174	Tr. Rafter	20′ & 30′	Var.	2′–0″	15-Live Ld.	2″ & 3-3/8″ T.R.
210	Gambrel Barn Truss	30′–0″	16′–0″	10′–0″	40	2-5/8″ & 4″ T.R.
*216	Gambrel Barn Rafter	34′–0″	22′–6″	2′–0″	Wind & Peak	2-5/8″ T.R.
21	Shawver Barn Truss	36′–0″	29′–7″	14′–0″	20-Wind	4″ T.R.
265	Hay Shed	36′x60′				
288	Garage & Work Shop	20′x54′				
313	Implement Shed	24′x48′				

Grandstands

Grandstand, Bleachers



Grandstand, Covered

TECO No.		
102	Grandstand, Covered	Depth 36′, Fixed Capacity 1521 persons
*109	Grandstand	Depth 26′, 12 tiers of seats. Capacity 312 persons per 42′ section
*43	Semi-Portable Bleachers	9 tiers of seats. Capacity 108 persons per 18′ section
109A	Roof for Design No. 109	

Distillery Warehouse Barrel Racks

TECO No.	
204	Barrel Rack Design—Double Rows—6 Barrels High
*217	Barrel Rack Design—Single and Double Rows 3, 6, 9, 12 Barrels High

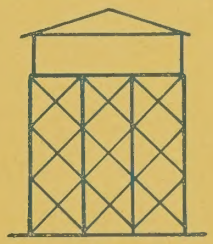
Bridges and Trestles

TECO connectors are being used extensively in bridges and trestles. In the field of bridges and trestles the Timber Engineering Company, its associated distributors and consulting engineers are cooperating with highway and railway bridge engineers throughout the country on development work. "Railway Timber Structures Made Stronger and More Economical with TECO Joint Connectors", a guide for railway engineers on the use of timber-connector construction, is available upon request. Technical data will be supplied upon request.

TECO No.	*Type*	*Span*	*Width*	*Load*
*325	Highway Trestle		25′–0″	H–15
*B–1	Pony Truss	70′–0″	18′–0″	H–10
*B–2	Arch	70′–0″	18′–0″	H–15
*B–3	Girder	30′–0″	18′–0″	H–10
*B–4	Pauli	70′–0″	18′–0″	H–15
*B–5	Howe	60′–0″	18′–0″	H–15
*B–6	Warren	60′–0″	18′–0″	H–15
*B–7	Double Warren	70′–0″	18′–0″	H–15
*B–8	K Truss	60′–0″	18′–0″	H–10
*B–9	Pony Truss	70′–0″	18′–0″	H–15
*B–10	King Post	30′–0″	18′–0″	H–10
*B–11	Rigid Frame	30′–0″	18′–0″	H–15
*B–12	Pony Truss	40′–0″	18′–0″	H–15
246	Typical Trestle		Single Track	E–45 E–60
350	Shipway Bridge	94′–0″	10′–0″	250 per sq. ft.
361	Laminated Cap for Trestle Bent			

Radio, Tank and Lookout Towers

Radio Tower



Tank Tower

Lookout Tower

TECO No.	*Type*	*Height*	*Size*
195	Radio Tower 4 sides	75′–0″	
250	Water Tank	30′–0″	2,000 gallon capacity
250A	Water Tank	30′–0″	5,000 gallon capacity
12	Water Tank A.R.E.A.	30′–0″	50,000 gallon capacity
	Water Tank A.R.E.A.	30′–0″	100,000 gallon capacity
186	Water Tank	60′–0″	50,000 gallon capacity
*USFS–1	Forest Lookout Tower	41′–0″	14′x14′ Cab.
*USFS–2	Forest Lookout Tower	65′–0″	14′x14′ Cab.
*USFS–3	Forest Lookout Tower	100′–0″	14′x14′ Cab.
*USFS–4	Forest Lookout Tower	53′–0″	7′x7′ Cab.
*USFS–5	Forest Lookout Tower	82′–0″	7′x7′ Cab.
*USFS–6	Forest Lookout Tower	99′–0″	7′x7′ Cab.

* Supplied Free—See second column, front page.

Airplane Hangars

TECO No.	*Type*	*Size*
*CAA–1	Low Cost Unit Hangar	Single Plane
*CAA–2	Multiple Unit Hangar	45′ Door Openings
*CAA–3	Frame Hangar	60′x60′
*CAA–4	Frame Hangar	80′x80′
*CAA–5	Frame Hangar	100′x100′

Miscellaneous Designs

TECO No.	*Description*	
323	Prefab. Demountable One Story Building	20′–0″ Width
296	Prefab. Demountable Two Story Building Barrack Type	25′–4″ Width
297	Prefab. Demountable CCC Building Barrack Type	24′–0″ Width
*274	Wharf & Revetment Details	
312	Shoring Frame for Building	
*358	Typical Assembly Bench for Trusses and Trussed Rafters	
201	Wooden Strain Electric Insulator	
154A	Laminated Crossarms	
239A	H–Pole Crossarms	

* Supplied Free—See second column, front page.

APPENDIX

Additional Typical Designs

The following organizations are prepared to supply illustrative designs for light and heavy timber framing for special conditions of span and loading as listed below. Requests for further information should be addressed direct to these firms.

SOUTHERN TIMBER ROOF TRUSS AND MISCELLANEOUS DESIGNS AVAILABLE FROM

J. C. HARTNESS
Lafayette Arcade
Tampa, Florida

Information and terms covering the following typical designs (File H) are available only from Mr. J. C. Hartness at the above address.

Triangular Roof Trusses

File No.	*Type*	*Span*	*Slope*	*Spacing*	*Live and Dead Load*
H–3632	Pratt	30′–0″	3⅜/12″	12′–0″	65
H–3637	High Camber	31′–4″	11″/12″	11′–4″	50
H–3836	Pratt	31′–0″	5/12″	10′–0″	50
H–3934	Pratt	32′–0″	6/12″	11′–0″	50
H–3649	Pratt	33′–0″	1/6″	12′–4″	50
H–3721	Pratt	33′–0″	6″/12″	16′–0″	50
H–362	Pratt	35′–0″	4/12″	17′–6″	40
H–3617	English	35′–0″	5½/12″	12′–6″	50
H–3730	High Camber	36′–0″	8/12″	16′–0″	40
H–3748	Pratt	37′–0″	5/12″	14′–0″	40
H–3838	Pratt	38′–2″	5/12″	12′–0″	50
H–356	Compound Fink	39′–0″	1/5″	16′–0″	40
H–3850	3′ Camber	40′–8″	7/12″	15′–0″	50
H–3643	High Camber (5′–6″)	40′–6″	6/12″	15′–7″	40
H–3645	Pratt	42′–0″	5½/12″	21′–0″	50
H–3751	Pratt	42′–0″	4/12″	13′–10″	35
H–3745	Pratt	42′–0″	4/12″	15′–0″	40
H–3834	Pratt	42′–0″	5/12″	14′–8″	40
H–3554	Pratt	43′–0″	5/12″	10′–10″	40
H–3555	Compound Fink	45′–0″	5/12″	18′–0″	40
H–3825	Howe	45′–0″	1 1/16/12″	12′–0″	50
H–3541	Compound Fink	46′–0″	6/12″	15′–0″	50
H–3638	Compound Fink	46′–0″	5/12″	18′–0″	35
H–3530	Pratt	47′–0″	½″/12″	15′–8″	35
H–3903	Pratt	47′–0″	4/12″	14′–0″	62½
H–3839	Pratt	48′–0″	7/12″	16′–0″	40
H–3809	Pratt	50′–0″	4½/12″	13′–1″	65
H–3823	Compound Fink	50′–0″	8/12″	19′–6″	40
H–3920	Compound Fink	50′–0″	4½/12″	16′–0″	40
H–3913	Pratt	50′–0″	Flat	18′–0″	50
H–3923	Pratt	50′–0″	Flat	16′–0″	50
H–3932	Pratt	50′–0″	2/12″	15′–0″	50
H–3612	Pratt	50′–0″	¼″/12″	16′–10″	60

Triangular Roof Trusses—Continued

File No.	Type	Span	Depth	Spacing	Live and Dead Load
H–3719	Pratt	50′–0″	1/5″	16′–0″	35
H–3754	Pratt	50′–0″	4/12″	16′–0″	40
H–3611	Compound Fink	54′–0″	5/12″	15′–0″	40
H–3802	Pratt	55′–0″	7/12″	16′–0″	50
H–3558	Compound Fink	57′–0″	6/12″	20′–8″	40
H–3738	(30′–0″ Platform) (2–14′ Awnings)	58′–0″	3/12″	16′–0″	40
H–3908	Pratt	60′–0″	4½/12″	15′–3″	50
H–3619	Compound Fink	50′–0″	5/12″	16′–0″	35
H–3707	Pratt	60′–0″	5/12″	20′–0″	40
H–3708	Compound Fink	60′–0″	6/12″	16′–0″	40
H–3719A	Pratt	60′–0″	1/5″	16′–0″	35
H–3542	Compound Fink	62′–0″	6/12″	16′–0″	40
H–3557	Pratt	66′–4″	4/12″	14′–7½″	40
H–3804	Compound Fink	67′–0″	5/12″	14′–0″	40
H–3831	Pratt	70′–0″	5/12″	15′–0″	40
H–3527	Pratt	70′–0″	3/12″	16′–8″	40
H–3546	Composite	70′–0″	3/12″	18′–0″	35
H–3562	Compound Fink	70′–8″	6/12″	14′–0″	40
H–3837	Compound Fink	75′–0″	5/12″	14′–0″	50
H–3532	Pratt	77′–0″	3/12″	19′–0″	40
H–3801	Pratt	78′–0″	1/12″	14′–0″	45
H–3905	Pratt	80′–0″	3/12″	20′–0″	40
H–3817	Compound Fink	87′–0″	1/5″	14′–2″	40
H–3647	Fink	90′–0″	1/5″	20′–0″	35
H–3615	Fink	100′–0″	1/5″	20′–0″	40
H–3755	Fink	100′–0″	1/5″	16′–0″	40

Arched Type Roof Trusses

File No.	Type	Span	Slope	Spacing	Live and Dead Load
H–3547	Scissors	36′–0″	12/12″	15′–0″	40
H–369	Scissors	38′–0″	5½/12″	13′–0″	40
H–365	Trussed Arch	70′–0″	5/12″	14′–0″	40
H–3746	Trussed Arch	71′–0″	4/12″	25′–0″	55
H–3741A	Trussed Arch	75′–0″	Arc.	16′–8″	40
H–3720	Circular Arch	100′–0″		15′–0″	40

Flat Roof Trusses

File No.	Type	Span	Slope	Spacing	Live and Dead Load
H–3560	Flat Top Pratt	32′–0″		11′–6″	50
H–3635	Flat Top Pratt	32′–0″		16′–0″	50
H–3901	Flat Top Howe	44′–0″	Flat	15′–0″	50
H–3713	Flat Top Pratt	50′–0″		20′–0″	40
H–3753	Quadrangular	55′–0″	1/12″	16′–0″	40
H–3628	Flat Top Pratt	60′–0″	¼/12″	16′–0″	50
H–3648	Quadrangular	60′–0″	1½/12″	18′–0″	40
H–3722	Flat Top Pratt	60′–0″	1/12″	20′–0″	42
H–3537	Quadrangular	64′–0″	1 5/12/12″	14′–0″	45
H–3702	Flat Top Pratt	65′–0″	½/12″	13′–9″	50
H–3833	Quadrangular (8′–1½″ Depth)	66′–0″		16′–0″	40
H–3556	Quadrangular	80′–0″	1½/12″	18′–0″	40

Bowstring Roof Trusses

File No.	Type	Span	Spacing	Live and Dead Load
H–3756	Bowstring	40′–0″	16′–8″	40
H–3849	Bowstring	50′–0″	14′–0″	50
H–3732	Bowstring	60′–0″	16′–0″	45
H–3741	Bowstring	75′–0″	16′–8″	40
H–3744	Bowstring	97′–7″	16′–0″	40
H–3733	Bowstring	100′–0″	22′–0″	62

Miscellaneous Designs

H– (1) Truss design and framing plan—45′ x 120′ shop.
H– (2) Standard Florida Agric. Market Board Market Shed.
H– (3) 60′ x 64′ Hangar, complete plans.
H– (4) 60′ x 120′ Florida Forest Shop, complete plans.
H– (5) 163′ x 228′ Packing House, complete plans.
H– (6) 80′ x 120′ Canning Plant Building, complete plans.
H– (7) 80′ x 80′ Hangar, complete plans.
H– (8) 97′–7″ x 600′ Market Shed, complete plans.
H– (9) 28,000 sq. ft. Warehouse, complete plans.
H–(10) Auditorium arch design, details and roof framing plan.

WESTERN TIMBER ROOF TRUSS, GRANDSTAND, BARREL RACK AND MISCELLANEOUS DESIGNS AVAILABLE FROM

TIMBER ENGINEERING CO. OF CALIFORNIA
85 Second Street
San Francisco, California

The following typical designs (File E) have been prepared to conform with and to apply particularly to conditions on the West Coast, both for the loading requirements of the structures and with the West Coast timbers available for grades and working stresses, and for dimensions and lengths readily obtainable.

All designs will be supplied by the Timber Engineering Company of California at a cost of 50c each for designs of one sheet. Additional copies of these designs or extra sheets of designs of more than one sheet will be supplied at 25c per sheet. The majority of these designs consist of a single sheet.

Triangular Roof Trusses

File No.	*Type*	*Span*	*Depth*	*Spacing*	*Live and Dead Load*
E–119	CCC Standard	20′–0″	4′–0″		
E–119	CCC Standard	24′–0″	5′–0″		
E–117	Trussed Rafter	30′–0″	7′–6″	5′–0″	15
E–114	Pitch with 6′ overhang	30′–0″	7′–6″	28′–0″	45
E–226	Modified Belgian	30′–0″	1/4 Pitch	4′–6″	40
	Pitched Rafter		1/6 ″	4′–0″	40
E–305	Triangule Howe—1/6 Pitch	30′–0″	4′–9-5/16″	12′–0″	30
E–333	Pitched Truss	35′–0″	5′–2″	18′–6″	37
E–227	Triangular Fan	35′–0″	1/4 Pitch	5′–0″	40
	Trussed Rafter	35′–0″	1/6 Pitch	5′–0″	40
E–129	Pitch	38′–0″	18′–6″	11′–11″	40
E–339	Cantilever—1 Way Slope	40′–0″	4′ & 6′	20′–0″	30
E–217	Fink Truss	40′–0″	10′–0″	16′–6″	40
E–224	Modified Belgian	40′–0″	10′–0″	4′–0″	40
	Trussed Rafter	50′–0″	12′–6″	5′–0″	40
E–225	Modified Belgian	40′–0″	10′–0″	5′–0″	40
	Trussed Rafter	50′–0″	12′–6″	3′–0″	40
E–185	Belgian—3 Panel	40′–0″	8′–11″	16′–0″	30
	4 Panel	40′–0″	11′–7″	16′–0″	30
E–186	Howe Pitch—3 Panel	40′–0″	10′–0″	16′–0″	30
	4 Panel	40′–0″	10′–0″	16′–0″	30
E–245	Howe	40′–0″	5′–6″	12′–0″	80
E–234	Pitched Pratt (1/6)	41′–4″	6′–8″	15′–0″	38
E–324	Modified Belgian	42′–7-3/4″	8′–0-5/6″	16′–3″	25
E–327	Belgian	43′–0″	7′–4-5/6″	17′–0″	30
E–103	Saw Tooth	44′–4″	10′–0″	20′–0″	40
E–337	Pitched Truss	44′–10″	14′–2″	15′–0″	37
E–338	Cantilever	45′–0″	10′–0″		
E–314	Low Pitch Howe	46′–10″	6′–0″	20′–0″	37
E–233	Pratt—1/6 Pitch	48′–0″	8′–0″	18′–0″	38
E–306	Triangular Belgian	48′–6″	8′–9-9/16″	15′–0″	40
E–309	Low Rise Pratt	48′–7-1/2″	5′–4″	20′–9″	37
E–295	Low Pitch Howe	48′–9″	6′–0″	20′–0″	37
E–294	Low Pitch Howe	48′–10-1/2″	6′–0″	15′–0″	37-1/2
E–313	Low Pitch Howe	49′–6″	3′–1″	20′–0″	800 L. Ft.
E–340	Cantilever—2 Way Slope	50′–0″	4′ & 8′	20′–0″	30
E–341	Cantilever—1 Way Slope	50′–0″	4′ & 6′	20′–0″	30

Triangular Roof Trusses—Continued

File No.	Type	Span	Depth	Spacing	Live and Dead Load
E–219	Triangular Belgian—10 Panel	50′–0″	12′–2-1/4″	19′–8″	40
E–322	Belgian Truss	50′–0″	10′–2-1/2″	15′–0″	25
E–166	Pitch	50′–0″	8′–2″	10′–0″	41
E–228	Modified Belgian	50′–0″	6′–0″	15′–0″	55
E–264	Triangular Belgian	50′–0″	9′–5-3/8″	16′–0″	30
E–282	Triangular Belgian	50′–0″	9′–2″	20′–0″	50
E–279	25′ Truss for Span with Center Post	50′–0″	8′–4″	16′–0″	35
E–316	Low Rise Pratt	50′–0″	5′–6″	22′ to 24′	37
E–146	Pitch	51′–0″	12′–9″	14′–0″	45
E–158	Pitch—Grandstand	54′–0″	7′–8″	6′–0″	
E–373	Belgian Truss—1/4 Pitch	55′–0″		15′–4″	35
E–101	Saw Tooth	55′–0″	10′–0″	20′–0″	40
E–115	Pitch	60′–0″	15′–8-1/2″	26′–0″	45
E–218	Triangular Belgian—10 Panel	60′–0″	15′–0″	19′–8″	40
E–281	Triangular Belgian	60′–0″	11′–0-5/16″	16′–0″	40
E–285	Fink	60′–0″	9′–9″	18′–0″	30
E–288	Fink—1/6 Pitch	60′–0″	9′–7-5/8″	17′–0″	50
E–289	Fink—1/4 Pitch	60′–0″	14′–7″	18′–0″	30
E–296	Triangular Howe	60′–0″	14′–7″	16′–0″	40
E–311	Low Rise Pratt	60′–0″	5′–6″	18′ to 20′	37
E–312	Low Rise Pratt	60′–0″	5′–6″	22′ to 24′	37
E–329	Belgian	60′–0″	9′–9″	16′–0″	30
E–331	Belgian	60′–0″	11′–1-3/8″	11′–3″	20
E–357	Pitch Truss	64′–0″	12′–8″	20′–0″	30
E–286	Triangular Fink—1/6 Pitch	65′–0″	10′–0″	17′–0″	53
E–287	Triangular Fink—1/6 Pitch	65′–0″	10′–8″	18′–0″	30
E–290	Triangular Belgian—1/6 Pitch	67′–4″	11′–0″	21′–4″	25
E–368	Belgian	70′–0″	13′–0″	15′–10″	30
E–237	Belgian—1/6 Pitch Heavy Design	70′–0″	11′–5-3/8″	17′–0″	50
E–238	Belgian—1/6 Pitch Light Design	70′–0″	11′–5-3/8″	18′–0″	30
E–317	Low Rise Pratt	70′–0″	7′–5″	20′–0″	37
E–291	Triangular Belgian—1/6 Pitch	75′–0″	12′–2″	16′–0″	25
E–292	Fink—1/4 Pitch	75′–0″	18′–4″	16′–0″	25
E–293	Fink—1/6 Pitch	75′–0″	12′–2″	16′–0″	25
E–148	Pitch (stress)	75′–0″			
E–283	Triangular Fan	80′–0″	9′–6″	18′–0″	30
E–284	Fan 1/4 Pitch	80′–0″	19′–5″	18′–0″	50
E–325	Low Rise Pratt	90′–0″	9′–6″	16′–0″	37
E–323	Pitch Truss	93′–4″	19′–5-1/4″	18′–4″	25

Arched Type Roof Trusses

File No.	Type	Span	Depth	Spacing	Live and Dead Load
E–253	Scissors	28′–0″	17′–9-1/4″	12′–0″	30
	Scissors	40′–0″	24′–5-1/8″	12′–0″	30
E–363	Arch	44′–0″		15′–0″	37
E–131	Arch	45′–0″	4′–10-1/8″	12′–0″	30
E–132	Arch	45′–0″	6′–6-7/16″	12′–0″	40
E–137	Arch	45′–0″	8′–2-1/4″	12′–0″	50
E–310	Arch	49′–4″	6′–4-13/16″	18′–6″	37
E–144	Arch	50′–0″	7′–0-13/16″	16′–0″	30
E–99	Scissors	56′–4″	16′–5″	14′–6″	47
E–299	Arch	59′–0″	6′–2-1/16″	21′–2-3/4″	37
E–300	Arch	59′–0″	6′–2-1/16″	20′–5-1/4″	37
E–130	Arch	60′–0″	6′–11-7/8″	14′–0″	50
E–138	Arch	60′–0″	6′–11-7/8″	12′–0″	30
E–150	Arch	60′–8″	9′–0-1/4″	11′–6″	50
E–335	Arch	60′–0″	6′–11″	18′–0″	30
E–229	Scissors—Mod. Knee Bracing	60′–0″		8′–0″	50
E–297	Arch	60′–0″	6′–11-1/2″	20′–5-1/4″	37
E–184	Arch (design)	80′–0″	9′–0-1/8″	16′–0″	40
E–171	Arch	80′–0″	10′–8-5/8″	20′–0″	70
E–191	Arch	100′–0″	11′–6-1/4″	16′–0″	40
E–192	Arch (design)	100′–0″	11′–6-1/4″	16′–0″	40
E–165	Arch	100′–0″	12′–0-7/32″	16′–0″	40
E–271	Bowstring (design)	105′–0″	13′–5-13/16″	20′–0″	70
E–118	Arch Centering Truss	110′–0″		11′–0″	
E–151	Arch	120′–0″	13′–6″	16′–0″	40
E–167	Arch	200′–0″	21′–9″	16′–0″	35

Flat Roof Trusses

File No.	Type	Span	Depth	Spacing	Live and Dead Load
D–18	Trussed Rafter	20′–0″	2′–2″	4′–0″	40
E–212	Trussed Rafter	31′–8″	2′–6-1/2″	2′–0″	42
E–244	Latticed Girder (2 drawings)	32′–0″ 32′–0″	18′–0″ 18′–0″	0′–60″ 0′–24″	70 70
E–358	Pitch Truss—1 way slope	33′–4″	9′–4″	15′–0″	30
E–330	Double Warren Trussed Girder	34′–0″ 22′–0″	2′–6″	Circular	42
E–336	Flat Top Truss	35′–9″	7′–0″	12′–0″	37
E–220	Howe Rafter	38′–0″	4′–6″	2′–0″	37
E–205	Reservoir Truss	38′–0″	Varies	21′–0″	14
E–256	Trussed Rafter	39′–10″	4′–0″	2′–8″	48
E–334	Double Warren Trussed Girder	39′–6″	5′–6″	20′–0″	30
E–202	One Slope Pitch	40′–4″	10′–1″	13′–10-1/2″	40
E–104	Flat Top Reservoir Inverted Pitch	40′–0″	7′–0″	16′–0″	25
E–221	Pratt Rafter	40′–0″	4′–8″	2′–8″	37
E–246	Flat Top Warren Light Pitch	40′–0″	5′–0″	12′–0″	45
E–178	Latticed Girder	40′–0″	3′–0″		1600 L. Ft.
E–235	Flat	41′–4″	5′–0″	15′–0″	48
E–208	Trussed Rafter	40′ to 45′	4′–8″	2′–8″	37
E–278	Flat Top Trussed Girder	42′–10″	2′–5-1/4″	5′–0″	370 L. Ft.
E–236	Double Warren 1 Way Slope	43′–10″ 43′–0″	2′–0″ 2′–6″	12′–0″ 12′–0″	43 43
E–215	Howe Trussed Rafter	45′–0″	4′–8″	2′–8″	37
E–216	Pratt Trussed Rafter	45′–0″	4′–8″	2′–8″	40
E–209	Trussed Rafter	46′ to 50′	5′–0″	2′–8″	37
E–273	Trussed Girder	46′–6″	5′–0″	21′–0-1/2″	40
E–189	Flat 1 Way Slope	47′–4″	5′–0″	20′–0″	40
E–230	Flat	49′–0″	3′–4″	16′–0″	60
E–231	Flat	49′–0″	2′–4″	8′–0″	60
E–239	Do. Warren, Flat, 13 Panel, 1 Way Slope	49′–0″	2′–6″	8′–0″	60
E–240	Do. Warren, Flat, 11 Panel, 1 Way Slope	49′–0″	3′–0″	16′–0″	60
E–243	Howe, Flat, Light Pitch	49′–0″	3′–6″	16′–0″	65
E–241	Howe, Flat, Light Pitch	49′–0″	3′–6″	16′–0″	45
E–242	Howe, Flat, Light Pitch	49′–0″	2′–3″	8′–0″	45
E–332	Trussed Rafter	50′–0″	4′–0″	2′–0″	45
E–116	Flat (Mod. Warren)	50′–0″	8′–0″	16′–0″	30
E–267	Flat Rafter Truss	50′–0″	5′–0″	0′–30″	37
E–268	Flat Rafter Truss	52′–0″	5′–0″	0′–32″	37
E–315	Pratt—10 Panel	50′–0″	5′–6″	18′ to 20′	37
E–105	Flat Top (stress)	60–′0″	8′–0″	13′–0″	75
E–106	Flat Mod. Warren	60′–0″	8′–0″	13′–0″	75
E–304	Flat Top Howe	60′–0″	5′–4-3/8″	20′–0″	37
E–112	Flat Warren	64′–0″	8′–0″	16′–0″	30
E–111	Howe	65′–0″	7′–0″	19′–4″	34
E–108	Flat Howe	68′–0″	9′–0″	16′–0″	75
E–308	12 Panel Pratt (analysis)	70′–6″	9′–6-1/4″	14′–10″	37
E–232	Pratt (modified)	72′–0″	8′–0″	22′–6″	45
E–263	Flat Top Pratt	72′–0″	6′–6″	0′–20″	30
E–113	Flat Top Howe	80′–0″	9′–6″	16′–0″	65
E–319	Pratt Truss	80′–0″	8′–6″	16′–0″	37
E–176	Flat (Double 45′ trusses with center column support)	90′–0″	15′–6″	16′–0″	40
E–120	Flat Top Warren	96′–0″	14′–3″	18′–0″	30
E–127	Pratt (design)	99′–0″	11′–0″	14′–0″	65
E–140	Howe	100′–0″	10′–0″	9′–0″	115
E–318	Pratt	100′–0″	11′–0″	20′–0″	37

Grandstands

File No.	
E–152	Redwood Grandstand—General Plan
E–157	Grandstand—Schematic Design

Distillery Warehouse Barrel Racks

File No.	
E–124	Barrel Rack—Design Sheet
E–133	Barrel Rack—General Layout
E–169	Barrel Rack—160 Barrels
E–169A	Barrel Rack—139 Barrels
E–360	Barrel Rack—Front & Side Elevation
E–190	Barrel Rack—4275 Barrels

Miscellaneous Designs

File No.	
E–247	Pitch Truss
E–147	Typical Large Stress Joints made with S.R. Connectors
E–168	Bridge Truss—70′–0″ Span (Foot Bridge)
E–177	Poster Panel Plan
E–203	Poster Panel
E–204	A-Frame for 45′ Streamliner Poster Panel
E–180	Foundation Plan—80′ Crane Shed
E–182	Heel Joint & Crane Joist Hangar—66′–3″ Arch Truss
E–193	Storage Shed—69′x145′ Out to Out
E–365	Barge Truss—37′–2″ 6′–0″ spacing
E–356	Bridge 100′–0″ 20′–0″ depth

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Highway Structures

File No.	Type	Span	Roadway	Loading
2–M	Box Culvert, 3′x5′			
8–M	Cattle Pass			
1–BTr	Std. Timber Trestle, wood deck, surfaced	19′–0″	20′–0″	H–15
2–BTr	Std. Timber Trestle, concrete slab	19′–0″	24′–0″	H–15
4–BTr	Std. Timber Trestle, wood deck, surfaced	23′–0″	30′–0″ Two 5′ Sidewalks	H–15
5–BTr	Std. Timber Trestle, wood deck, surfaced	27′–0″	30′–0″ Two 5′ Sidewalks	H–15
2–BT	King Post Truss, wood deck, surfaced	38′–0″	20′–0″	H–12-1/2
14–BT	Deck Truss, wood deck, surfaced	80′–0″	24′–0″	H–15
5–BT	Thru Truss, Curved Top Chord, wood deck, surfaced	90′–0″	20′–0″	H–15
9–BT	Thru Truss, Curved Top Chord, wood deck, surfaced	110′–0″	12′–0″	H–10
13–BT	Thru Truss, Camel Back, wood deck, surfaced	150′–0″	24′–0″	H–15
10–BT	Thru Truss, Howe, Covered	165′–0″	19′–3″	H–15
1–BS	Suspension Bridge Stiffening Truss	484′–0″	6′–7″	Cattle Loading

Roof Trusses

File No.	Type	Span	Slope	Spacing	Live Load
1–RT	Reservoir Roof	72′–0″ longitudinal trusses 58′–0″ transverse trusses			
1–RTA	Reservoir Roof	40′–0″ trusses with posts and beams			
4–RT	Loading Shed Roof	131′–0″			
7–RT	Airplane Hangar	160′–0″	Flat	20′–0″	25
10–RT	Triangular Belgian	30′–0″	6:12	16′–0″	20
8–RT	Triangular Belgian	40′–0″	6:12	16′–0″	20
9–RT	Triangular Belgian	50′–0″	6:12	16′–0″	20
11–RT	Triangular Belgian	60′–0″	6:12	18′–0″	20
13–RT	Triangular Belgian	70′–0″	$4\frac{13}{16}$:12	18′–0″	20
14–RT	Triangular Belgian	80′–0″	$4\frac{13}{16}$:12	20′–0″	20
15–RT	Inverted Pratt	40′–0″	Flat	16′–0″	25
16–RT	Inverted Pratt	60′–0″	Flat	18′–0″	20
17–RT	Inverted Pratt	80′–0″	Flat	20′–0″	20
18–RT	Inverted Pratt	100′–0″	Flat	24′–0″	20
21–RT	Triangular Belgian for U. S. Army Garage	45′–0″	3:12	20′–0″	20
22–RT	Triangular Fan demountable for U. S. Army in Alaska	20′–0″	12:12	10′–0″	30

Grandstands

File No.		
5–G	Open Grandstand	13 or more tiers of seats
2–G	Covered Grandstand	16 tiers of seats
3–G	Roof for Grandstand	50′ deep
4–G	Roof for Grandstand	54′ deep
6–G	Roof for Grandstand	65′ deep

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